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Teaching NeuroImage: Pontine Owl-Eyes Lesions in a Case of Neuroborreliosis

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Contributions:

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Maria Isabel Vargas: Analysis or interpretation of data

Patrice H Lalive: Drafting/revision of the manuscript for content, including medical writing for content; Study concept or design; Analysis or interpretation of data

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Brain MRI in a 65-year-old woman with headache, sensory ataxia and tick exposure revealed leptomeningeal and cranial nerve enhancement and T2-hyperintense symmetrical pontine lesions resembling the “owl-eyes” sign, a radiological finding described in ischemic or compressive myelopathy (*Figure A-C*).¹ CSF analysis revealed pleocytosis (163/ μ L) and intrathecal production of anti-*Borrelia* IgG (CSF/serum index 21, N<2). Work-up was negative for alternative causes. The patient fully recovered after 21 days of ceftriaxone (*Figure D-F*).

Radiological findings in neuroborreliosis include signs of cranial neuritis, meningitis or stroke.² In patients presenting with symmetrical T2-hyperintense lesions of the pons, this case supports the inclusion of neuroborreliosis in the differential diagnosis.

Appendix 1: Authors

Name	Location	Contribution
Simon Borgeaud, MD	Department of Neurosciences, Division of Neurology, Geneva University Hospital, Geneva and Faculty of Medicine, Switzerland.	Acquired the data (examined the patient, made the diagnosis), composed the figure and wrote the manuscript
Maria Isabel Vargas, MD	Division of Neuroradiology, Geneva University Hospitals and University of Geneva, Geneva, Switzerland;	Reviewed radiological images, designed and composed the figure
Patrice H. Lalive, MD	Department of Neurosciences, Division of Neurology, Geneva University Hospital, Geneva and Faculty of Medicine, Switzerland. AND Diagnostic Department, Division of Laboratory Medicine, Geneva University Hospital, Geneva, Switzerland	Acquired the data (examined the patient, made the diagnosis) and revised the manuscript

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Figure : pontine owl-eyes lesions - MRI before (A-C) and 1 week after (D-F)
antibiotic treatment: axial T2 (A, D), coronal FLAIR with gadolinium (B, E), axial T1 with gadolinium (C, F). Initial MRI reveals symmetrical ovoid T2-hyperintense, T1-hypointense pontine lesions, with local (C), leptomeningeal (B) and cranial nerves (not shown) contrast enhancement. Post-treatment MRI shows absence of contrast enhancement in the lesions.

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